No. 9000179

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

The Regents of the University of California

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. [illegible] THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS [illegible]ASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS [illegible]D BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

GLOBE ARTICHOKE

'Imperial Star'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D. C. *this* 31st *day of* January *in the year of our Lord one thousand nine hundred and ninety-one.*

Attest:

Kenneth R. Evans

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Clayton Yeutter

Secretary of Agriculture

FORM APPROVED: OMB 0581-0055, Expires 1/31/91

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.

3. VARIETY NAME
Imperial Star

4. ADDRESS *(street and no. or R.F.D. no., city, state, and ZIP)*
Kaiser Center
300 Lakeside Drive, 22nd Floor
Oakland, California 94612

5. PHONE *(Include area code)*
(415) 748-6600

FOR OFFICIAL USE ONLY

PVPO NUMBER
9000179

FILING
Date: May 23, 1990
Time: ☐ A.M. ☑ P.M.

FEES RECEIVED
Filing and Examination Fee: $ 2150.
Date: May 18, 1990
Certificate Fee: $ 250.
Date: Dec. 31, 1990

6. GENUS AND SPECIES NAME
Cynara Scolymus L.

7. FAMILY NAME *(Botanical)*
Compositae

8. CROP KIND NAME *(Common Name)*
Globe Artichoke

9. DATE OF DETERMINATION
1986

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
California

12. DATE OF INCORPORATION
June 18, 1968

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Robert E. Fissell
University of California
1320 Harbor Bay Parkway, Suite 150
Alameda, California 94501
PHONE *(Include area code)*: (415) 748-6600

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow INSTRUCTIONS on reverse)*

- a. ☒ Exhibit A, Origin and Breeding History of the Variety.
- b. ☒ Exhibit B, Novelty Statement.
- c. ☒ Exhibit C, Objective Description of Variety.
- d. ☐ Exhibit D, Additional Description of Variety.
- e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.
- f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office 5/14/90
- g. ☒ Filing and Examination Fee ($2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See section 83(a) of the Plant Variety Protection Act.)* ☒ YES *(If "YES," answer items 16 and 17 below)* ☒ NO *(If "NO," skip to item 18 below)*

JMS 5/11/90 per certificate order form

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☒ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? ☒ FOUNDATION ☒ REGISTERED ☐ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?

☐ YES *(If "YES," through* ☐ Plant Variety Protection Act ☐ Patent Act. Give date: _____ .)
☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?

☐ YES (If "YES," give names of countries and dates)
☒ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*	CAPACITY OR TITLE	DATE
Robert E. Fissell	Manager of Plant Patents & Licensing	5-11-90
SIGNATURE OF APPLICANT *(Owner(s))*	CAPACITY OR TITLE	DATE

EXHIBIT A

Origin and Breeding History of the "Imperial Star" Artichoke

In 1981 an artichoke cross was made at the USDA Field Station in Brawley, California using pollen from an individual plant selection out of an artichoke line originally from France and obtained from Dr. R.C. Tang of the Desert Seed Co. and an individual plant from an Italian line from Bari, Italy via Dr. Vince Rubatzky at U.C. Davis.

The F1 grown in 1982 showed distinct hybrid vigor. Bud types were variable but all of acceptable types. An F2 population of 60 plants grown in 1983 segregated very widely and manifested many characteristics not apparent in either parent. Among these was extreme thorniness (thorns on leaf tips and petioles).

Several plants of the F2 population showed an attractive glossiness of the buds and a lack of thorns. Two of these plants were sib-crossed. The F3 generation had a high incidence of glossiness but considerable variability.

Multiple sib crosses were made between plants with similar characteristics in 1984. In 1985 the F4 lines began to form into types. One sib line looked quite uniform in a small population - selected plants from this selected line were mass sibbed.

Seed from the 1985 mass sib line was moved to the University of California Meloland Field Station in Holtville, California. Mass selection techniques were conducted in the four years 1986 thru 1989. This mass selection for earliness, uniformity, yield potential, and bud characteristics led to the development of the "Imperial Star" variety.

PEDIGREE - "IMPERIAL STAR" ARTICHOKE

Year	Gen.	Cross / Process / Notes
1981	Cross	"Green Globe" X Italian Thorny Type
1982	F1	Observed distinct hybrid vigor
1983	F2	Sib cross of two selected plants with glossy fruit with no thorns
1984	F3	Multiple Sib crosses of selected plants with similar characteristics
1985	F4	Lines forming into types, selected one uniform sib line
1986 - 1989	F5 - F8	Mass selection for uniformity, bud type, and yield potential

The 'Imperial Star' variety is both distinctive and uniform. None of the plants grown in seed increase during the last two years were rogued because of incompatability with variety morphological characteristics. Selection for the last two years has been for apparent yield potential, and earliness.

Variants or off type plants occur infrequently during seed increase or production. Less than two percent (2 in 100 plants) have a slightly flared upper bud bract characteristic commonly referred to as 'pineapple bud shape'. Less than one percent (1 in 100 plants) have redish colored bracts. And approximately three hundreths of one percent (3 in 10,000 plants) have spines on the buds or plants.

EXHIBIT B
Summary Statement of Variety's Novelty

The 'Imperial Star' variety most closely resembles the 'Texas Hill' variety in overall appearance. 'Imperial Star' is, however, more uniform in bud and head characteristics than 'Texas Hill' (see Fig. 1 showing samples of 'Texas Hill' and 'Imperial Star' artichoke heads). 'Imperial Star' is novel and distinct from other artichoke varieties in the following bud and plant characteristics.

Novel Bract/Bud Color
The 'Imperial Star' variety has a novel and attractive 'glossy green' bract or bud color. The 'Imperial Star' bract/bud is more reflective of light than other artichoke varieties. This reflective quality, or in other words glossy appearance, along with the variety's distinctive grayish mid-green bract/bud color, gives this variety a novel and distinctive bud appearance. Commercial artichoke varieties like 'Green Globe Improved', 'Texas Hill', 'Green Globe', 'Talpiot', or 'Big Heart XR-1', have dull or flat colored bract/buds by comparison.

Spineless Plants and Buds
The 'Imperial Star' variety has spineless leaves and buds at maturity. This is a novel characteristic when comparing 'Imperial Star' to commercially available seeded artichoke varieties in winter (November through February) production in Southern California. Comparison varieties (i.e., 'Green Globe Improved' and 'Texas Hill') had at least 50%-75% of harvestable buds which bore spines during fall/winter production in this region.

Achene Color
'Imperial Star' seed is predominantly medium in color with varying degrees of darker brown striping. Approximately twenty percent of the seed, however, is black. Seed coat color is a genetic characteristic linked to the maternal parent in artichoke crosses. The mixture of seed coat colors, a material genetic characteristic, within the morphologically uniform variety 'Imperial Star' is a novel and distinctive characteristic.

Achene Germination and Cotyledon Appearance
Approximately ten percent of the germinating 'Imperial Star' seedlings have white cotyledons. White cotyledon seedlings do not develop chlorophyll. These white cotyledon plants die as soon as energy stored in the seed is expanded. This disorder is novel to this variety and apparently is tightly linked genetically to the glossy green bract or bud color mentioned above. This characteristic does not correspond to the percentage of black seed (i.e., most black seed germinate without white cotyledons).

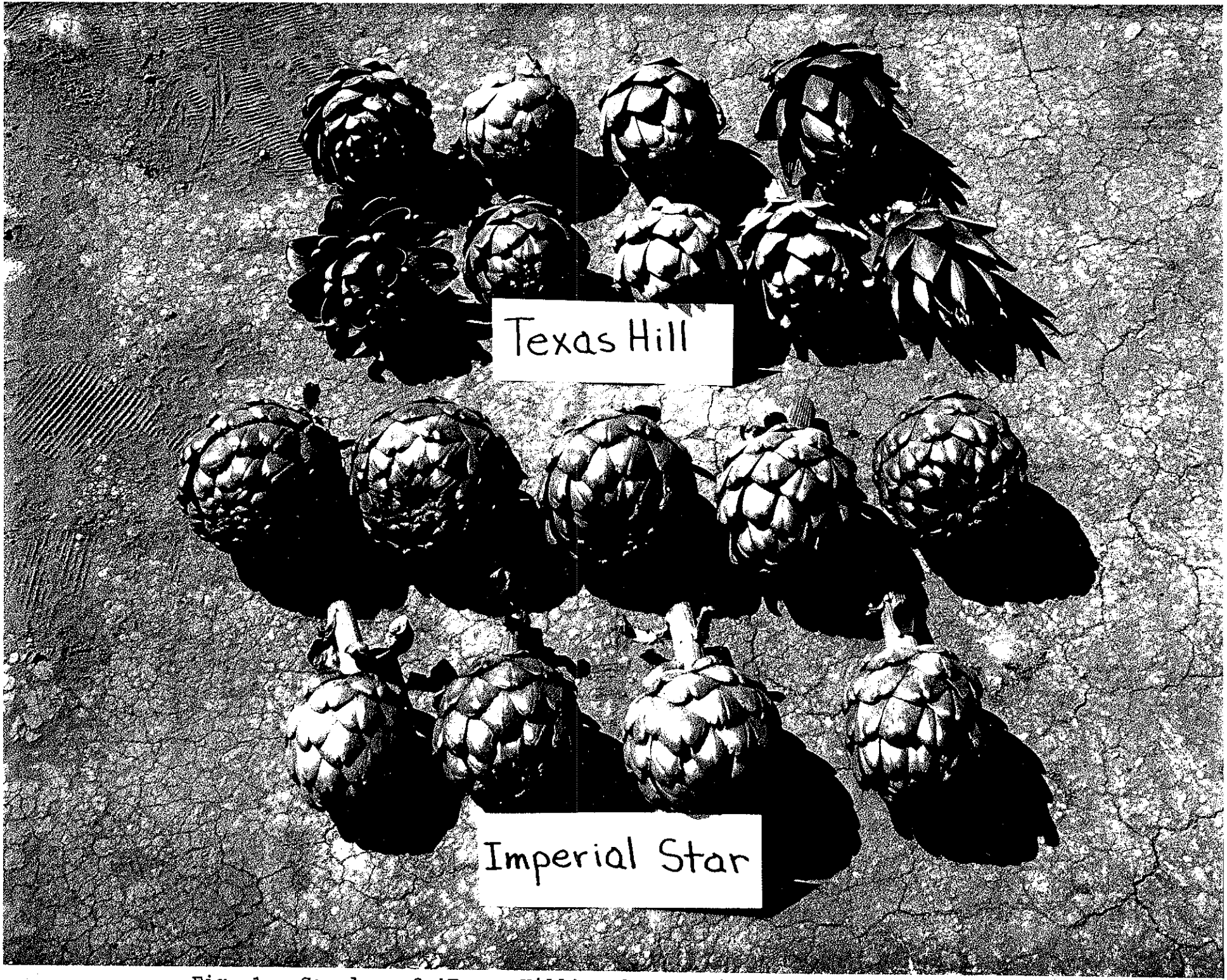

Fig. 1. Samples of 'Texas Hill' and 'Imperial Star' artichoke heads.

EXHIBIT C
(Globe Artichoke)

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK AND SEED DIVISION
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY

GLOBE ARTICHOKE (Cynara scolymus L.)

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
Keith S. Mayberry and Wayne L. Schrader	UC-IS-89	Imperial Star

ADDRESS (Street & No., or R.F.D. No., City, State, & Zip Code) 1050 E. Holton Rd.
Holtville, CA 92250

FOR OFFICIAL USE

PVPO NUMBER

Place the appropriate number that describes the varietal characters typical of this variety in the boxes below. When the number of significant digits is fewer than the number of boxes, place a zero in the first box or boxes. All characters need not be described; however, completeness should be striven for to establish an adequate variety description. Name and provide Check variety data where indicated. Several seed propagated check varieties are 'Green Globe', 'Talpiot', and 'Texas Hill'.

1. MARKET MATURITY:

   |2|1|7| No. Days from Seeding to 1st Head Harvest

   |2|3|2| Ditto for Check Variety (Name) Texas Hill

   |5|0| No. Days in Harvest Period |4|0| Check Texas Hill

2. PLANT: (Harvest Stage)

   Height: |1|4|5| cm |1|4|0| cm Check Texas Hill

   Habit: |1| 1=upright 2=intermediate 3=broad

   |0|4| No. Axillary Shoots |0|3| Ditto for Check Texas Hill

3. LEAF: (Harvest Stage)

Color: |3| 1=light green 2=medium green 3=dark green 4=gray green

Spines: |1| 1=none 2=few 3=many

Blade Length: |7|6|cm Blade Length: |6|6|cm Check Texas Hill

Blade Width: |5|1|cm Blade Width: |5|1|cm Check Texas Hill

Petiole Length: |1|8|cm |1|5|cm Check Texas Hill

Shape: |3| 1=entire 2=slightly lobed 3=deeply lobed

Leaf Shape Variability: |1| 1=slight 2=moderate 3=high

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4. PRIMARY FLOWER HEAD: (Harvest Stage)

Shape: |5| 1=cylindrical 2=conical 3=ovoid 4=elipsoid 5=spherical

Base Diameter: |1|1|cm |1|0|cm Check Texas Hill

Length or Depth: |1|1|cm |1|1|cm Check Texas Hill

Bract Tightness: |3| 1=loose 2=moderately compact 3=compact

External Bract Color: |10| 1=light green 2=mid green 3=dark green 4=green with purple tint 5=green with brown tint 6=green with purple tip 7=green with purple-brown tint 8=purple with green tint 9=purple 10=other(specify) predominately glossy mid green; few glossy mid green and slight purple of bract base near bottom of flower head.

Internal Bract Color: |1| 1=whitish-green 2=yellow-green 3=straw

Bract Spines: |1| 1=none 2=few 3=many

Bract Shape: |2| 1=round 2=oval 3=elongated

Bract Tip Shape: |2| 1=entire 2=slightly notched 3=deeply notched

Bract Length: |7|6|mm |8|4|mm Check Texas Hill

Bract Width: |6|4|mm |7|6|mm Check Texas Hill

Peduncle Length: | | |cm | | |cm Check Not measured

Peduncle Diameter: |2|5|mm |2|7|mm Check Texas Hill

Weight per Primary Head: |2|9|6|grams |2|6|5|g Check Texas Hill

No. Primary Heads/Plant: |0|4| |0|3| Ditto Check Texas Hill

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5. SECONDARY FLOWER HEAD:

Weight per Head: |2|0|7|grams |8|8|g Check Texas Hill

No. Heads/Plant: |0|8| |0|6| Ditto Check Texas Hill

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6. FLORET:

Color: |4| 1=white 2=pink 3=red 4=purple 5=blue 6=other_____

Diameter: | | |mm Not measured

| | | No. per Primary Head | | | Ditto Check Not measured

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7. ACHENE:

Color: |2| 1=monocolor 2=bicolor

Color Pattern: |2| 1=speckling 2=striping 3=other_____

Primary Color: |2| 1=tan 2=med. brown 3=blue 3=green 4=black
5=other_____

Secondary Color: | | (Choose from above -- specify other) dark brown

Seed Weight: |3|8|g/1000 achenes |4|0|Ditto Check Texas Hill

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8. ANTHOCYANIN: (1=absent; 2=noticable; 3=very noticable)

|1| Leaf Petiole |1| Leaf Blade |1| Peduncle |3| Petal (floret petal)

|1| Head Bract (few-2) |1| Bract Spine |1| Leaf Spine |1| Pappus

|1| Achene | | Other (Specify)_____

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9. DISEASE REACTION: (Enter 0=Not Tested; 1=Susceptible; 2=Resistant)

|0| Botrytis Rot (Botrytis cinerea) |0| Curly Dwarf Virus

|0| Black Tip Syndrome | | Other None seen in last four years of selection

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10. INSECT REACTION: (Enter 0=Not Tested; 1=Susceptible; 2=Resistant)

|0| Plume Moth (Platyptilia carduidactyla) |1| Aphid

|0| 2-Spotted Spider Mite |0| Chrysanthemum Leafminer

|0| Cribrate Weevil | | Other_____

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11. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED

CHARACTER	VARIETY NAME	CHARACTER	VARIETY NAME
Plant Habit	Texas Hill	Peduncle Length	Texas Hill
Leaf Size	Texas Hill	No. 1st Heads	Texas Hill
Leaf Shape	Texas Hill	No. 2nd Heads	Texas Hill
1st Head Size	Texas Hill	Maturity	Texas Hill

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Ryder, E.J., N.E. De Vos, and M.A. Bari. 1983. The globe artichoke (Cynara scolymus L.). HortScience 18(5):646-653.

2. Basnitzki, Y. and D. Zohary. 1987. A seed-planted cultivar of globe artichoke. HortScience 22(4):678-679.

3. Dellacecca, V., V. Magnifico, V. Marzi, E. Porceddu, and G. Mugnozza. 1974. Contributo alla conoscenza delle varieta' di carciofo coltivate nel mondo (Description of artichoke varieties cultivated in the world). Nuovi Studi sul Carciofo. Paper from Second International Congress on Artichoke Studies. pp.199-315.

JMS 11/27/90

EXHIBIT D

Additional Description of Variety

General Observations
The 'Imperial Star' variety most closely resembles the 'Texas Hills' variety in overall appearance of plant and bud. The 'Imperial Star' variety is, however, extremely uniform in bud and plant characteristics while 'Texas Hills' exhibits considerable variability in both plant and flower head type.

Distinctive Characteristics
Distinctive bract glossiness, uniformity, and outstanding apparent yield potential are the characteristics that obviously set 'Imperial Star' apart from other commercially available seeded artichoke varieties (i.e. 'Texas Hills' and 'Green Globe Imp.').

Flower Head Characteristics
The 'Imperial Star' variety has a distinctive and attractive 'glossy green' bract color. Bracts are ovoidal in shape with tips that are retuse to emarginate. The thornless bracts do not flare with increasing maturity and are slow to spread open as flower heads approach harvestable stage. The spherical shape of the flower head is striking in it's uniformity.

Uniformity of flower head shape, size, and general appearance make this a variety with a high percentage of marketable buds. 'Imperial Star' flower heads are larger on the average than 'Texas Hill' buds and the percentage of 18 and 24 size buds is significantly greater.

Achene Appearance
Seed is predominantly medium brown in color with varying degrees of darker brown striping. Approximately twenty percent of the seed is black. The 'Imperial Star' variety sets seed easily and has high seed yield.

Achene Germination and Cotyledon Appearance
The vigor of seed and total germination percentage is higher with 'Imperial Star' than with 'Texas Hill". Approximately ten percent of the germinating 'Imperial Star' seedlings have white cotyledons. This characteristic does not correspond to the percentage of black seed (i.e. black seed germinate without white cotyledons).

Earliness / Harvest Period
'Imperial Star' is generally two weeks earlier in winter production than either 'Green Globe Imp.' or 'Texas Hill'. The harvest period for 'Imperial Star' is approximately a week longer than for these comparison varieties.

EXHIBIT E

Statement of Basis of Applicants Ownership

In 1985 and 1986, Keith S. Mayberry and Wayne L. Schrader, farm advisors for the University of California Cooperative Extension Service in Imperial and San Diego counties, respectively, requested and were granted segregating F4 artichoke seed lines from the USDA. They obtained these lines (USDA release numbers 85-110, 86-024, and 86-026 - see attached release notice) from Joe Principe, USDA breeder at the USDA research field station in Brawley California. These segregating accession lines formed the basis for mass crosses and selections which led to the distinctive bud characteristics, earliness, uniformity, and yield potential of the 'Imperial Star' cultivar.

Pursuant to University of California (UC) patent policy applying to UC personnel (see attached copy of form UPAY 585-1 (R7/87)) , the Regents requested and obtained from Mayberry and Schrader the assignment of their rights, title and interests in the 'Imperial Star' cultivar (see attached assignment of rights document). Having in their possession an assignement from the breeders, the Regents of the University of California are the owners of all rights, title, and interest in and to this artichoke cultivar.